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ABSTRACT

Previous research has shown that women and minority medical students experience stresses not observed in their white male peers. This study examined the combined effects of race and sex on the stress manifested in a diverse longitudinal sample of medical students from two medical schools. Students (N=259, an 82.7% response rate) in the first year classes completed questionnaires requesting demographic information, assessing personality characteristics, stress experienced, styles of coping and adaptation including the use of social support systems, and physical and mental health. These students were asked to complete questionnaires during their third year of medical school, when the response rate dipped to 54% of the year 1 sample. A multivariate analysis of the dependent variables of anxiety, depression, and total perceived stress at two time points revealed that women of color had significantly higher scores on the anxiety measure in year 1, and on the anxiety and total stress measures in year 3. The results indicate the significance of the interaction of stressors related to race and sex on women of color, and reinforce the importance of examining such variables together, rather than in isolation. Further research should further elucidate the factors related to race and sex that contribute to student stress, and explore possible preventive measures to reduce such strains. (ABL)

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Race and Sex Differences in Medical Students' Experiences of Stress

Poster presented at the Annual Meeting of the American Psychological Association,
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Abstract

Previous research has shown that women and minority medical students experience stresses not observed in their white male peers. This study examined the combined effects of race and sex on the stress manifested in a diverse longitudinal sample of medical students from two medical schools. A multivariate analysis of the dependent variables of anxiety, depression and total perceived stress at two time points revealed that women of color had significantly higher scores on the anxiety measure in Year 1, and on the anxiety and total stress measures in Year 3. The results indicate the significance of the interaction of stressors related to race and sex on women of color, and reinforce the importance of examining such variables together, rather than in isolation.

Introduction

We know a great deal about the general difficulties of the medical education process and the negative impact it has on some of the individuals socialized through it, although most such research has focused on white male medical students and physicians. Far less attention has been paid to the experiences of women and people of color. Thus, the purpose of this research is to track the form and persistence of stress over a three year period in a racially diverse sample of men and women medical students.

It has been well established that medical school and the practice of medicine are often difficult processes for those participating in them (Becker, Geer, Everett & Strauss, 1961; Merton, Reader & Kendall, 1957; Shapiro & Lowenstein, 1979; Thomas, 1976; Murphy, Nadelson, & Notman, 1984; McCue, 1982; Vaillant, Sobowale & McArthur, 1972). These difficulties can be magnified for women and people of color who diverge from the white and male norm upon which most such institutions were built (Coburn & Jovais, 1975; Notman, Salt & Nadelson, 1987; Thomas, 1990; Lorber, 1984; Leserman, 1981; Notman, Salt & Nadelson, 1984; Altbach & Lomotey, 1991; Ehrhart & Sandler, 1990; Boston Women's Health Book Collective, 1985). The adversity of the medical training process includes a paucity of role models, mentors and advocates for women and people of color (Nadelson, 1991; Lorber, 1984), excessive competition (Grossman, Salt, Nadelson & Notman, 1987), sleep deprivation (Chamberlain, 1981), and the frustration of being at the bottom of a rigid hierarchical organization (Konner, 1987). The additional necessity of learning to deal daily with life and death situations (Notman, Salt & Nadelson, 1984) combined with potential experiences of sexual and racial harassment (Ehrhart & Sandler, 1990) all combine to make medical school a challenging and often difficult experience.

Incidents of racial and sexual discrimination can be viewed as particular examples of stressful life events (Rabkin & Struening, 1976; Whitlock, 1978; Hacker, 1975; Miller, 1980, 1988), which may impinge with the greatest intensity on the lives of women of color. The consequences of such treatment are thought to include low self-esteem (Clark & Clark, 1939; Clark, 1963; Fanon, 1976; O'Malley & Bachman, 1979; Rosenberg & Simmons, 1975), alienation, and social isolation (Smith, 1985).

The negative implications of the stress, adversity and isolation experienced by participants in the medical educational process and subsequent practice of medicine include substance abuse, which may affect as many as 10% of physicians (Murphy, Nadelson & Notman, 1984). Suicide rates for women physicians appear to be higher than those for men physicians and for women in the general population (Steppachner & Mausner, 1974). Less dramatic forms of impairment affect physicians, their families, and patients as well -- marital difficulties and improper or inadequate behavior with patients being some examples (Vaillant, Sobowale & McArthur, 1972). The ramifications of success or failure in coping with medical school thus have implications for the practitioners themselves, as well as for those whom they treat.

Longitudinal research is necessary to examine questions of the form and persistence of stress over time. Although a number of longitudinal studies have been conducted on medical students (e.g., Becker, et al, 1961; Merton, et al, 1957; Leserman, 1981; Zeldow, et al, 1988; Thomas, 1976), the most classic ones are dated not only by the era in which they were conducted, but also by the population of students they examined, namely white men, a limitation

also present in reports of more recent longitudinal studies (Leserman, 1981; Zeldow, Daugherty, & McAdams, 1988; Zeldow & Daugherty, 1991).

The purpose of this research was to examine the proposition that experiences of stress in medical school are heightened for those bearing the additional burdens of sexism and racism, and that stress levels would reflect the combination of these stressors. Thus, it was expected that women in general, and women of color in particular, would evidence consistently higher levels of stress than their peers in medical school.

Method

In the fall of 1980, researchers Carol Nadelson and Malkah Notman began a study of the class of 1984 at Harvard and Tufts medical schools. All students in the first year classes were asked to complete questionnaires for a study about the medical school experience. 259 students agreed to participate, yielding an 82.7% response rate. 69% of the sample were men; 31% were women. 20% of the respondents were either african-american, hispanic, native american or asian (this compares to a national average of 14% students of color in medical schools (Peterson, 1981)). These students were again asked to complete questionnaires during their third year of medical school, when the response rate dipped to 54% of the year one sample.

All respondents completed a packet of materials requesting demographic information, assessing personality characteristics, stress experienced, styles of coping and adaptation including the use of social support systems, and physical and mental health. The three dependent measures used to assess stress levels in this study included the Zung depression (1965) and anxiety (1971) scales, as well as a summary score of the amount of stress perceived by each respondent, derived from responses to the Life Conditions Questionnaire (Belle, 1982).

Results

In order to examine whether the four groups (white men, men of color, white women, women of color) differed on the dependent measures of anxiety, depression, or total perceived stress at each time point, MANOVAs were conducted with group membership as the independent variable. Post hoc Scheffe' tests were performed to detect significant differences between group means. Table 1 displays the group means, standard deviations, and F ratios for each measure at both time points.

This analysis yielded significant overall differences between groups on their anxiety profiles at both time points: Year 1: $F(3, 97)=5.35$, $p\leq.002$; Year 3: $F(3,97)=5.49$, $p\leq.002$. Follow up tests indicated that women of color scored significantly higher on anxiety than both racial groups of men in year 1, and that women of color were significantly higher than all whites in year 3.

The results also revealed significant differences between groups on the total stress measure in Year 3: $F(3,58)=5.72$, $p\leq .002$. At this time, women of color scored higher than all whites.

Nonsignificant trends in the data were also in the expected direction, with only one exception, depression in year 3, where there was very little variance in scores at all.

Discussion

The results supported the expected relationship between stress levels and the interaction of race and sex, whereby women of color demonstrated consistently higher mean scores on all three indices of stress, with only one exception. These findings are consistent with previous work showing that minority medical students experience stresses not shared by white students (Pyskoty, Richman & Flaherty, 1990; Strayhorn & Frierson, 1989), and other research demonstrating that women medical students face stresses that their male peers do not (Alagna & Morokoff, 1986; Grossman, Salt, Nadelson & Notman, 1987).

The unique contribution of the data from this study is the demonstration that the interaction of race and sex is also a significant factor in understanding the distribution of stress amongst medical students. Further, the persistence of this pattern over a 2 year time period reinforces the import of these results.

These data suggest that racism and sexism may be important factors in the stress experienced by medical school students, and signal the need for a heightened awareness of and attention to the particular combination of stressors faced by minority women medical students. This awareness is important for medical school administrators and clinicians who seek to improve the process and experience of medical education.

Future research should further elucidate the factors related to race and sex that contribute to student stress, and explore possible preventive measures to reduce such strains.

Table 1

Mean Scores on Dependent Measures of Stress by Group

Measure	White Men	White Women	Men of Color	Women of Color	F
Anxiety (n=101)					
Year 1	40.1[b]	44.5	38.0[b]	48.3[a]	5.35*
Year 3	44.4[b]	45.1[b]	45.8	51.4[a]	5.49*
Depression (n=96)					
Year 1	42.8	42.6	39.6	49.8	1.56
Year 3	55.6	54.9	59.5	56.8	1.31
Total Stress (n=62)					
Year 1	272.4	296.7	294.8	298	.18
Year 3	271.5[b]	302.4[b]	280.4	502.5[a]	5.72*

* $p <= .002$

[a] differs significantly ($p <= .05$) from groups with [b] notation.

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